



# Operators Manual

## Installation, Operation & Service

### Direct Steam Table Top Mixers

#### MODELS:

MKDT-12-T, MKDT-20-T



MKDT-12-T



MKDT-20-T

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# INSTALLATION

## GENERAL

Installation of the unit must be accomplished by qualified installation personnel working to all applicable local and national codes. Improper installation of product could cause injury or damage.

This unit is built to comply with applicable standards for manufacturers. Included among those approval agencies are: UL, NSF, ASME/Ntl.Bd., CSA, ETL, CE, and others. Many local codes exist, and it is the responsibility of the owner/installer to comply with these codes.

## INSPECTION

Before uncrating, visually inspect the unit for evidence of damage during shipping. If damage is noticed, do not unpack the unit, follow shipping damage instructions.

## SHIPPING DAMAGE INSTRUCTIONS

If shipping damage to the unit is discovered or suspected, observe the following guidelines in preparing a shipping damage claim.

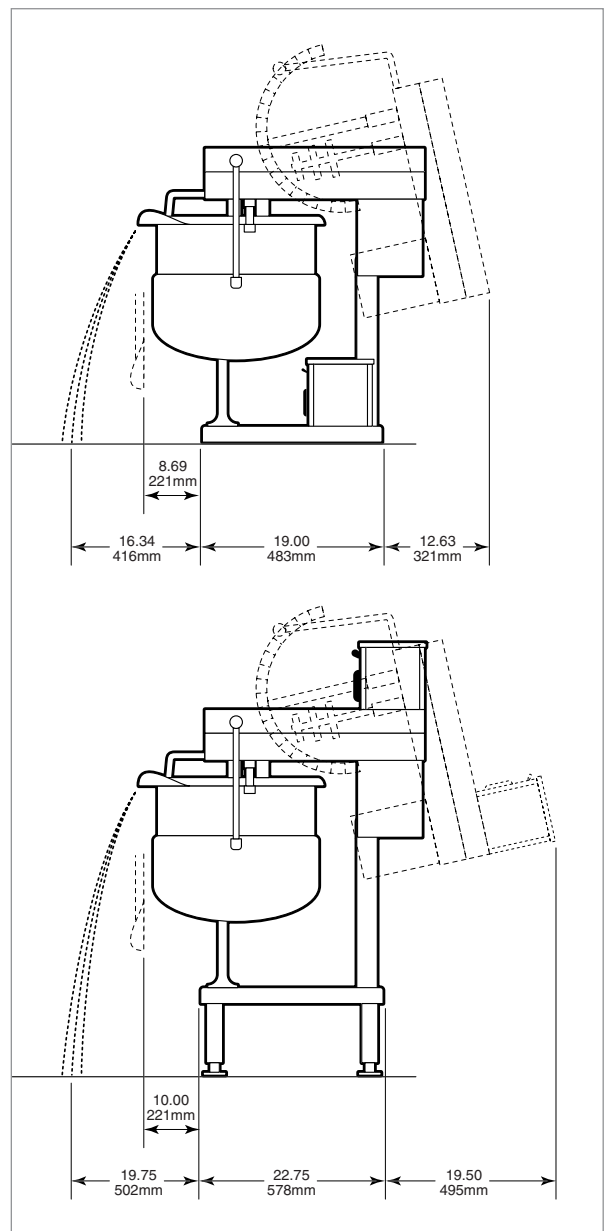
1. Write down a description of the damage or the reason for suspecting damage as soon as it is discovered. This will help in filling out the claim forms later. If possible, take a polaroid picture.
2. As soon as damage is discovered or suspected, notify the carrier that delivered the shipment.
3. Arrange for the carrier's representative to examine the damage.
4. Fill out all carrier claims forms and have the examining carrier sign and date each form.

## INSTALLATION

The first installation step is to refer to the SPECIFICATION SHEET or SPECIFICATION DRAWING to determine the exact location of the kettle.

### CLEARANCE REQUIREMENTS TO COMBUSTIBLE AND NONCOMBUSTIBLE SURFACES:

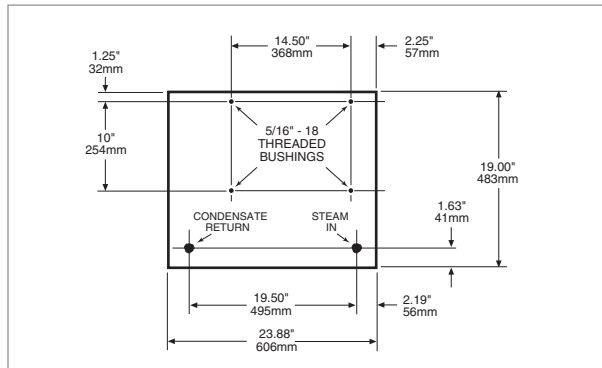
	RIGHT	LEFT	BACK
MKDT-12-T	0"	0"	see below
MKDT-20-T	0"	0"	see below



Clearance Requirements & Pour Path Drawing

## ASSEMBLY

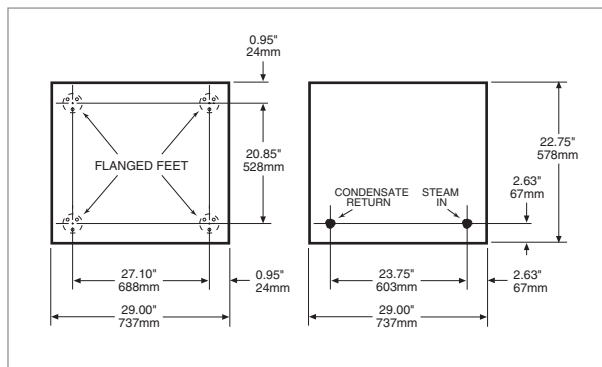
### 12 Gallon Models



Base Mounting Diagram - Bottom view

1. Table-top models (12 gallon) must be positioned on a firm, level stand, or existing counter top, and bolted in place. These models are supplied with four threaded mounting bushings welded to the underside of the base.
2. Install service requirements as required (see below).
3. Once the kettle is secure and service utilities installed, screw tilt handle into the threaded hole provided at the right side of kettle.

### 20 Gallon Models

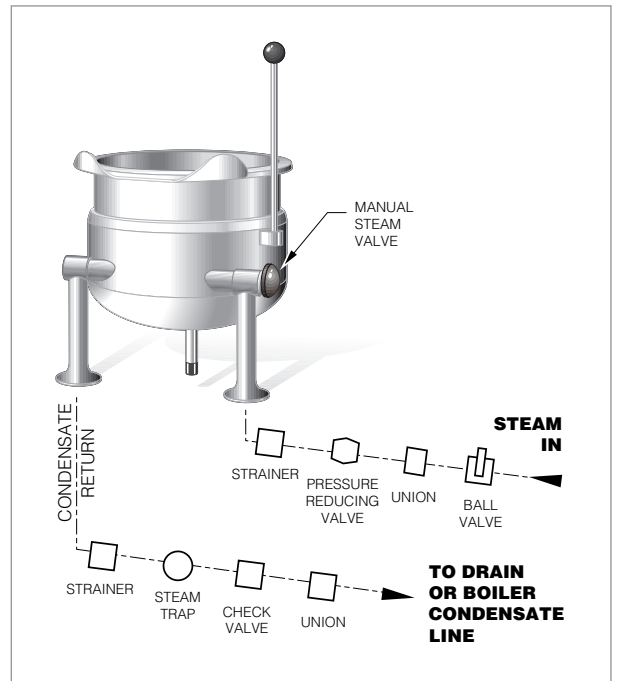


Base Mounting Diagram - Bottom views showing leg locations & utilities

1. Position on a firm, level surface, and bolt the four flange feet in place.
2. Install service requirements as required (see below).
3. Once the kettle is secure and service utilities installed, screw tilt handle into the threaded hole provided at the right side of kettle.

## RECOMMENDED PIPING SCHEMATICS

(all service connections shown supplied by others)



Recommended Piping Schematic

## STEAM

All steam plumbing to and from the kettle and steam boiler should be thoroughly cleaned and inspected for dirt and debris before final connection to the kettle are made.

Generally, kettles require 1/2" i.p.s. pipe, 10-45 psi steam pressure. If the steam supply pressure exceeds 45 psi, a pressure reducing valve is required. The steam inlet is at the right side of the kettle, as seen from the front.

## CONDENSATE

Maximum pressure rating on kettles is 50 psi. It is highly recommended that a pressure relief valve equal to or less than this pressure be installed on the incoming steam line close to the kettle.

A steam condensate trap must be plumbed to a drain, using minimum 1/2" NPT plumbing. The condensate line is limited to a maximum rise of 10 feet in order for the steam pressure to adequately force the condensate through the plumbing. Any higher rise requires a pump.

If the steam boiler to which this kettle is installed has a condensate return (closed loop system), a 1/2" steam strainer, a 1/2" steam trap, and a 1/2" check valve must be installed on the output (condensate) side of the kettle.

## ELECTRICAL

### ***ENSURE THE ELECTRICAL SUPPLY MATCHES THE KETTLE'S REQUIREMENTS AS STATED ON THE RATING LABEL.***

This kettle is built to comply with applicable standards of manufacturers. Included among these approval agencies are UL, NSF, ASME/Ntl. Bd., CSA, ETL, and others. Many local codes exist, and it is the responsibility of the owner and installer to comply with these codes.

The electrical supply must match the power requirements specified on the kettle's rating plate. The copper wiring must be adequate to carry the required current at the rated voltage. Refer to the Specification Sheet for all electrical specifications.

**Note:** Maximum voltage for LVD (low volt directive for Europe) to be 440 volts for CE marked appliances.

## POTABLE WATER

The water faucet (optional) with swing spout, requires 1/2 inch O.D. copper tube plumbing for hot or cold water supplies to the faucet (SPK - cold water connection only, DPK - hot and cold water connection).

## INSTALLATION CHECKS

Although the kettle has been thoroughly tested before leaving the factory, the installer is responsible for ensuring the proper operation of kettle once installed.

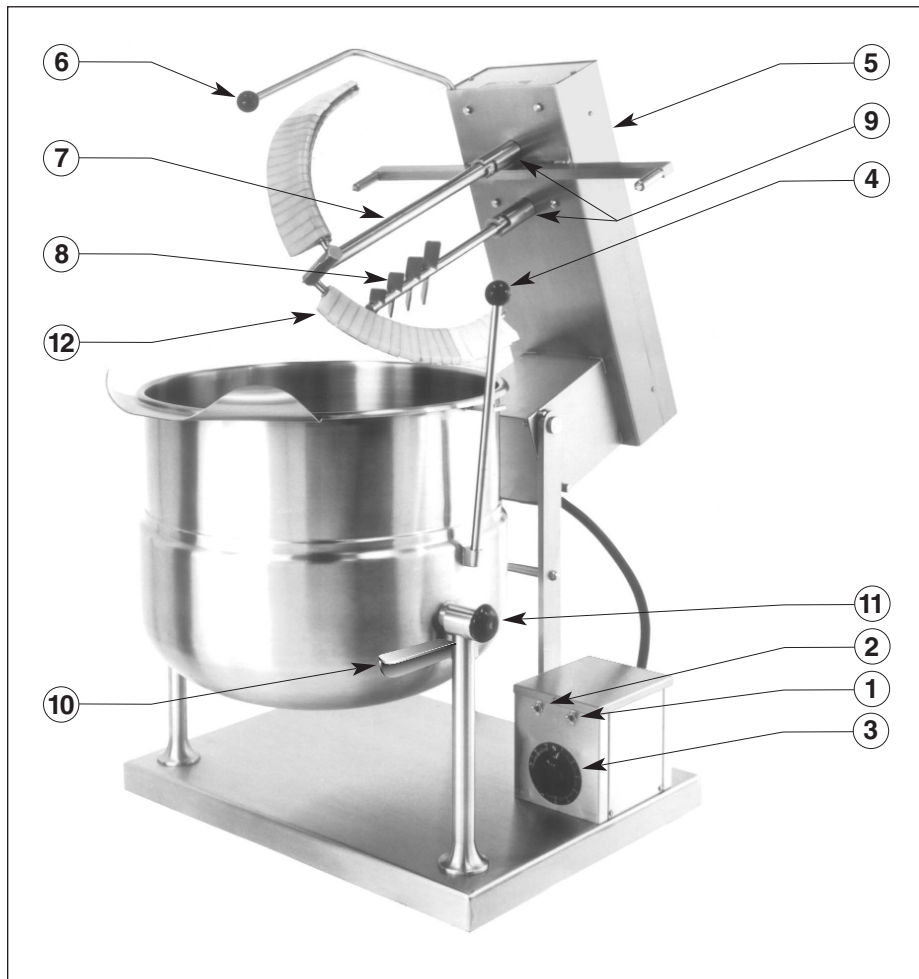
### **Final Installation Check**

- 1.** Partially fill the kettle with water.
- 2.** Slowly turn the steam control valve's knob to the open position.
- 3.** Release the safety valve, ensuring that the steam escapes freely. Stay clear of steam exhaust when releasing the safety valve.
- 4.** Observe that the water in the kettle comes to a boil.
- 5.** Close the steam supply valve.
- 6.** Drain off the water by tilting the kettle.

## CLEANING

After installation the kettle must be thoroughly cleaned and sanitized prior to cooking. See complete cleaning instructions in this manual.

# OPERATING INSTRUCTIONS



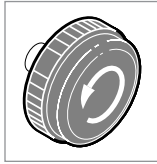
General Parts Drawing

ITEM #	DESCRIPTION	FUNCTION
1.	On-Off Toggle Switch	Controls electrical power to unit.
2.	Mixer Start Switch	Starts mixing action.
3.	Agitator Speed Control Knob	This control allows the operator to select agitator speed increments from Min. to Max.
4.	Kettle Tilt Handle	Used for tilting the kettle.
5.	Mixer Bridge	Encloses agitator motors.
6.	Mixer Bridge Tilt Handle	Used for tilting mixer bridge.
7.	Main Agitator Arm	Provides most of the product movement.
8.	Secondary Agitator Arm	Provides reverse agitation and product lift in kettle.
9.	Bayonet Mounts for Agitator Arms	Allows removal of main and secondary agitator arms without tools.
10.	Marine Lock	Prevents unit from accidental tilting.
11.	Steam Control Valve	Manually controls the amount of steam entering the steam jacket.
12.	Scraper Blades	

# **CLEVELAND STEAM COOKING EQUIPMENT IS INTENDED FOR COMMERCIAL USE ONLY BY PROFESSIONALLY TRAINED PERSONNEL.**

## **KETTLE OPERATION**

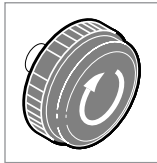
1. Ensure that there is an adequate steam supply to the kettle.



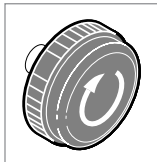
2. Turn the Steam Control Valve (**11**) to the open position by turning the knob counter-clockwise, then allow the kettle to preheat.

**NOTE:** When cooking egg and milk products, the kettle should NOT be preheated, as products of this nature adhere to hot cooking surfaces. These types of foods should be placed in the kettle before heating is begun.

3. Fill kettle with product to desired level.



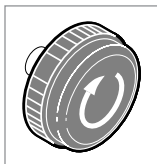
4. When the product has reached the desired temperature, regulate the heat, as required, by turning the Steam Control Valve (**11**) clockwise for less steam, and therefore, a lower temperature.



5. When cooking is complete, close the Steam Control Valve (**11**) by turning the knob clockwise.

## **MIXER OPERATION**

1. Turn Mixer Start Switch (**2**) to "ON".



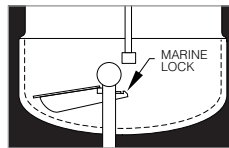
2. Adjust Steam Control Valve (**11**) to desired setting.

## **FOR KETTLE/STEAMER COMBINATIONS:**

If the boiler in a steamer is supplying steam to a kettle, always heat the kettle first. After the kettle contents are heated, and the boiler's steam pressure returns to normal, the steamer may be used. Pressure steamer compartments should be sequentially started, and preheated before cooking.

**NOTE:** As with cleaning food soil from any cookware, an important part of kettle cleaning is to prevent food from drying on. For this reason, cleaning should be completed immediately after cooked foods are removed. Please read the "Care and Cleaning" instructions for detailed kettle washing procedures

## **Marine Lock**



If your unit is equipped with a Marine Lock (**10**) to prevent accidental tilting, it must be inspected daily to insure it moves freely and

automatically locks into place when kettle is returned to upright position.

Use the following procedure to tilt the kettle.

1. Securely grasp the Kettle Tilt Handle (**4**).
2. Push the Marine Lock (**10**) button down to unlock tilting mechanism.
3. Pull the Kettle Tilt Handle (**4**) to tilt the kettle.
4. When you return the kettle to its' original upright position the Marine Lock (**10**) will latch automatically.



# CLEANING INSTRUCTIONS

## CARE AND CLEANING

Your kettle must be cleaned regularly to maintain its fast, efficient cooking performance, and to ensure its continued safe, reliable operation.

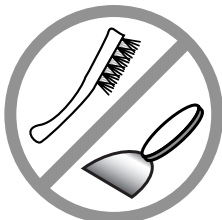


Chloride Cleaners

**WARNING:** Do not use chloride base detergents. There is a growing number of non-chloride cleaners available. If unsure of the cleaners chlorine content consult the supplier. Also avoid cleaners containing quaternary salt as they can cause the stainless steel to pit and rust.

**WARNING:** If any gaskets or seals are found defective, replace or repair immediately. (See Service Parts Drawings for part identification.)

1. Close the Steam Control Valve (11) and allow kettle to cool.
2. Prepare a warm water and mild detergent solution in the kettle.
3. Remove food soil inside the kettle using a nylon brush.



Wire Brush & Scrapers

**WARNING:** Do not use a metal bristle brush or scraper, as this may permanently damage the kettle's stainless steel surface.

4. Loosen food which is stuck to the kettle by allowing it to soak at a low temperature setting.
6. Rinse kettle interior thoroughly, then drain the rinse water. Do not leave water sitting in unit when not in use.
7. Using mild soapy water and a damp sponge, wash the exterior of the kettle, rinse, and dry.
8. Clean any food deposits that may have spilled onto the Marine Lock (10).

## AGITATOR ASSEMBLY

1. Place the Kettle's On-Off Toggle Switch (1) to the "OFF" position.
2. Raise Mixer Bridge (5) by using Mixer Bridge Tilt Handle (6).
3. Push Main Agitator Arm (7) towards Bayonet Mount (9), rotate counterclockwise and then pull out to remove. Repeat process for Secondary Agitator Arm (8).
4. Scraper Blades (12) can be removed by sliding them up the arm and rotating until free.
5. Clean all parts.

**NOTE:** For more difficult cleaning applications one of the following can be used: alcohol, baking soda, vinegar, or a solution of ammonia in water.



Steel Pads

**WARNING:** Steel wool should never be used for cleaning the cooking chamber of the kettle. Particles of steel wool become embedded in the cooking surface and rust, which may corrode the stainless steel.

**NOTE:** Unit should not be cleaned with a water jet.

## RECOMMENDED CLEANERS FOR SPECIFIC SITUATIONS

Job	Cleaning Agent	Comments
Routine Cleaning	Soap, Ammonia Detergent, Medallion	Apply with cloth or sponge
Fingerprints & Smears	Arcal 20, Lac-O-Nu Ecoshine	Provides barrier film
Stubborn Stains & Discolouration	Cameo, Talc, Zud First Impression	Rub in direction of polish lines
Grease & Fatty Acids, Blood, Burnt-On Foods	Easy-Off, De-Grease It Oven Aid	Excellent removal on all finishes
Grease & Oil	Any good commercial detergent	Apply with sponge or cloth
Restoration/ Passivation	Benefit, Super Sheen	



# SERVICE PARTS

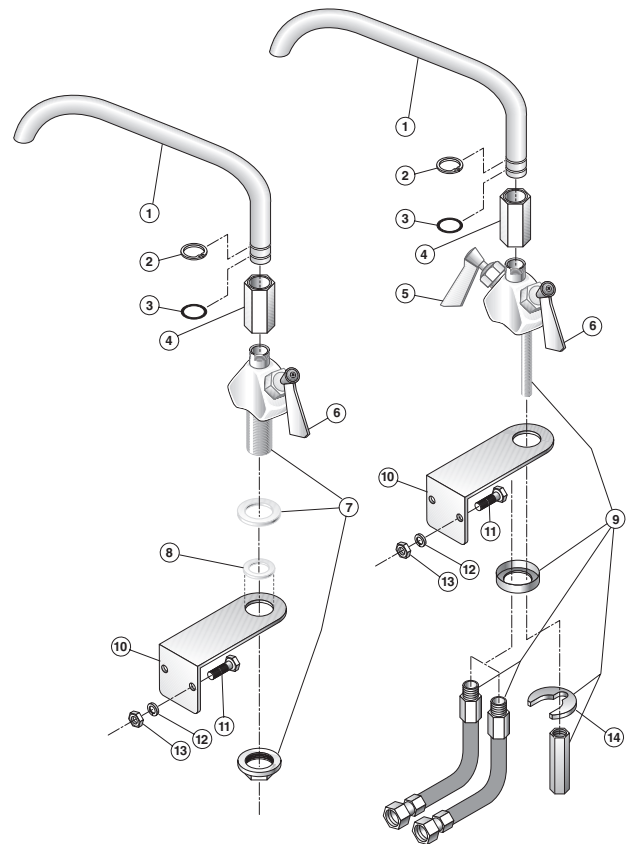
## WARRANTY

Our Company supports a worldwide network of Maintenance and Repair Centers. Contact your nearest Maintenance and Repair Centre for replacement parts, service, or information regarding the proper maintenance and repair of your cooking equipment

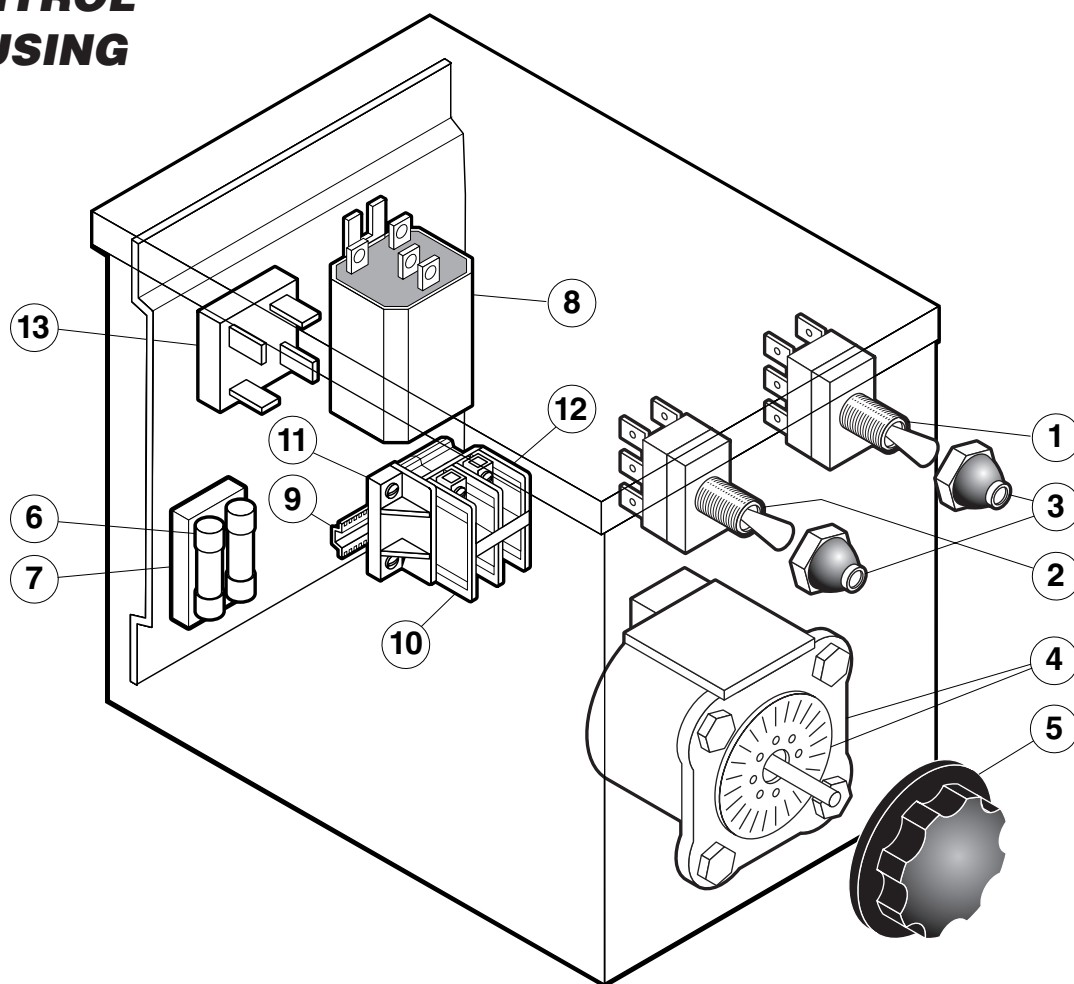
In order to preserve the various agency safety certification (UL, NSF, ASME/Ntl. Bd., etc.), only factory-supplied replacement parts should be used. The use of other than factory supplied replacement parts will void warranty.

## FAUCET ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	KE50825-2	3/4" Spout (KET-3/6/12/20-T) . . . . .	1
	KE50825-9	3/4" Spout (TKET-3/6/12-T) . . . . .	1
2.	FA95022	Retaining Ring . . . . .	1
3.	FA05002-19	"O" Ring . . . . .	1
4.	KE51736	Long Faucet Nut . . . . .	1
5.	SE50020	Hot Water Stem Assembly . . . . . (Double Pantry only)	1
6.	SE50021	Cold Water Stem Assembly . . . . .	1
7.	KE51401	Single Pantry Body . . . . . (c/w Item No. 6)	1
8.	KE50335	Adapter Washer . . . . . (Single Pantry only)	1
9.	KE51403	Double Pantry Body . . . . . (c/w Item No. 5&6)	1
10.	KE54159	Faucet Mounting Bracket . . . . .	1
11.	FA11258	Hex Cap Screw . . . . .	2
12.	FA30505	Washer . . . . .	2
13.	FA21008	Hex Nut . . . . .	2
14.	SE50447	Washer Horseshoe . . . . .	1

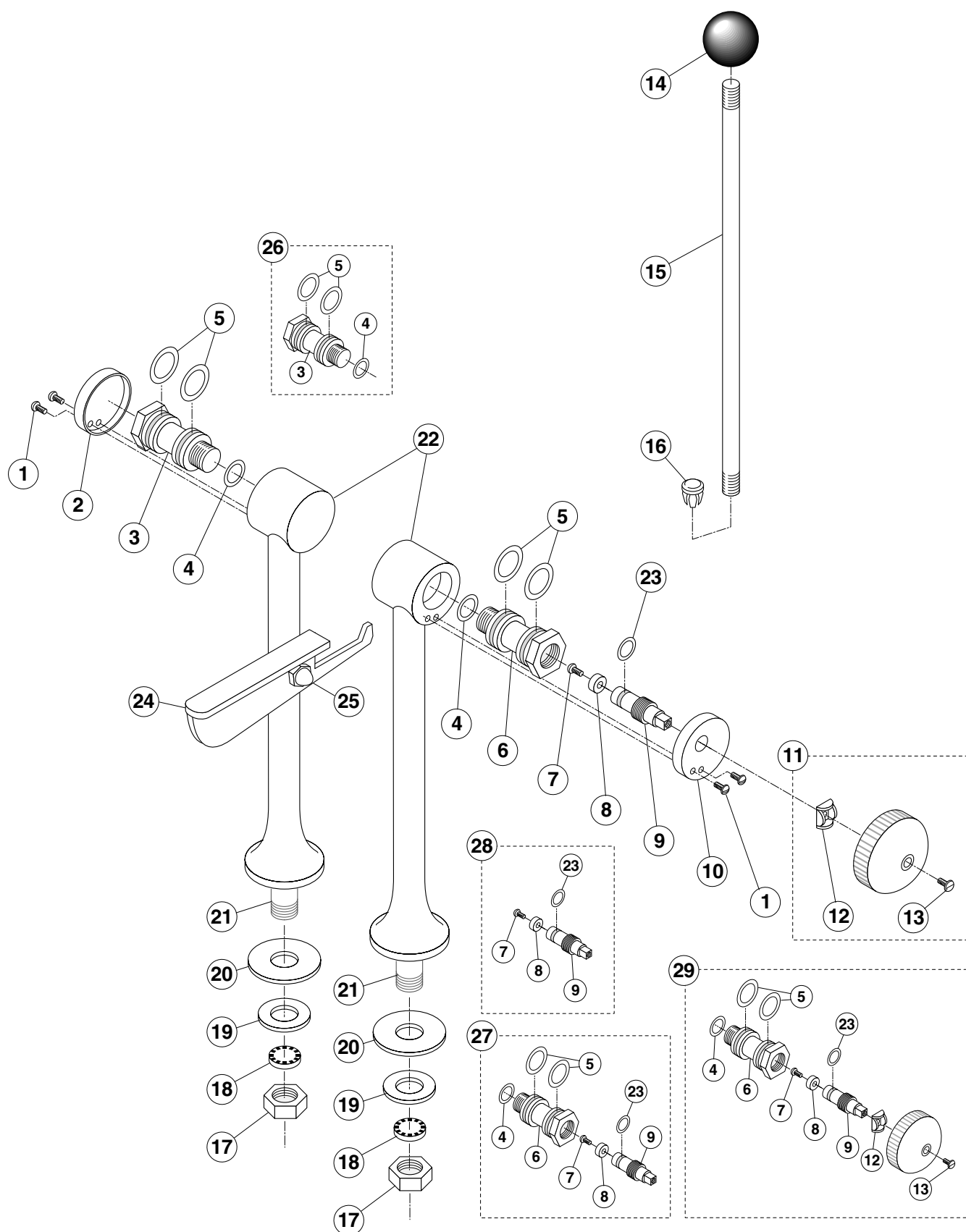


## CONTROL HOUSING



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	KE51955	Switch, Toggle, Momentary . . . . .	1
2.	KE50504	Switch, Toggle, SPST . . . . .	1
3.	SK50062	Rubber Boot . . . . .	2
4.	KE51940	Powerstat, 120 V . . . . .	1
	KE51941	Powerstat, 240 V . . . . .	1
5.	KE52190	Knob, Speed Control . . . . .	1
6.	KE51919	Fuse, 10 Amp. (115v motor) . . . . .	2
	KE51920	Fuse, 5 Amp. (230v motor) . . . . .	2
7.	KE51139	Fuse Holder (single) . . . . .	2
	KE51228	Fuse Holder (double) . . . . .	2
8.	KE0753-1	Relay, 12 VAC . . . . .	1
9.	KE54761	Terminal Block Mounting Strip . . . . .	1
10.	SK50055-1	Terminal Block . . . . .	3
11.	SK50054-2	Terminal Block End Anchor . . . . .	1
12.	SK50054-1	Terminal Block End Barrier . . . . .	1
13.	KE50581	Bridge Rectifier . . . . .	1

# STEAM CONTROL ASSEMBLY

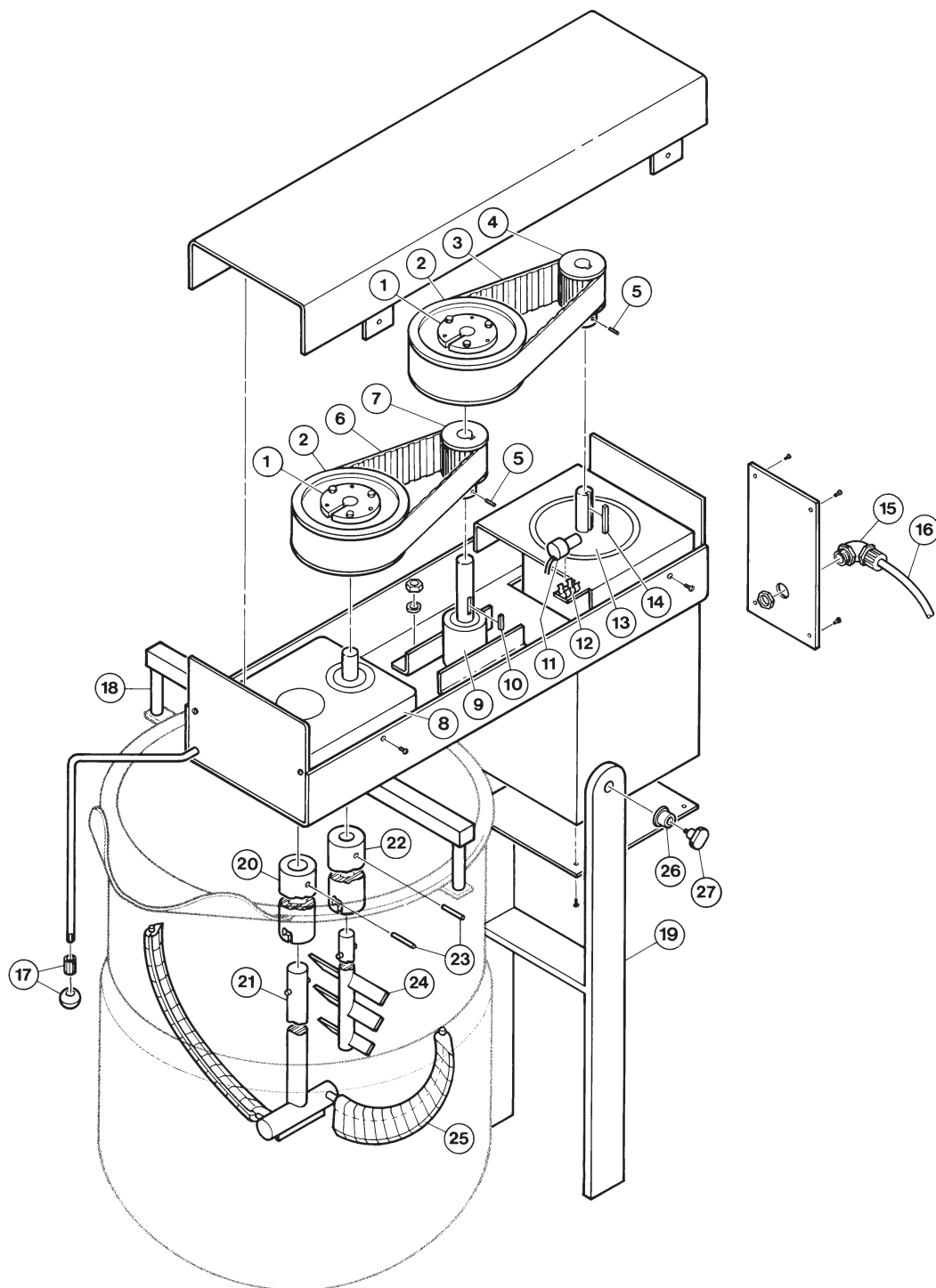


# STEAM CONTROL ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	FA11056	Binding Head Screw, 6-32 x 1/2" lg. ....	4
2.	KE50458	End Cap, condensate return ....	1
3.	KE50455-1	Trunnion, condensate return ....	1
4.	FA05002-35	"O" Ring ....	2
5.	FA05002-37	"O" Ring ....	4
6.	KE50460-1	Trunnion, steam inlet ....	1
7.	FA11089	Binding Head Screw, 8-32 x 1/4" lg. ....	1
8.	KE51713	Washer, steam valve ....	1
9.	KE50459	Operating Stem ....	1
10.	KE50457	End Cap, steam inlet ....	1
11.	SE00028	Steam Control Knob Assembly (c/w Item No. 12, 13 & Knob) ....	1
12.	KE51888	Retaining Washer ....	1
13.	FA11092	Binding Head Screw, 8-32 x 1/2" lg. ....	1
14.	KE50151-E	Knob, threaded (after 07/94) ....	1
	KE50151	Knob, non threaded (prior to 06/94) ....	1
15.	KE50886-3	Handle, KDT-6-T & KDT-12-T ....	1
	KE50886-4	Handle, KDT-20-T ....	1
16.	KE50475	Plug Button ....	1
17.	KE52697	Lock Nut, 1/2" NPS ....	2
18.	FA32500	Lockwasher ....	2
19.	FA30502	Washer, satin coat ....	2
20.	KE50467	Washer, Foot ....	2
21.	KE50463	Service Pipe, KDT-12-T ....	2
	KE50464	Service Pipe, KDT-20-T ....	2
22.	KE00203	Leg Assembly ....	2
23.	FA05002-12	"O" Ring ....	1
24.	KE01115	Marine Lock Latch ....	1
25.	KE52632	Crown Nut ....	1
26.	SE00096	Steam Outlet Assembly ....	1
27.	SE00011	Trunnion Assembly, steam inlet ....	1
28.	SE00029	Operating Stem Assembly, steam inlet ....	1
29.	SE00030	Steam Inlet Control Assembly ....	1

Requires Knob -  
Item No. KE50151-E

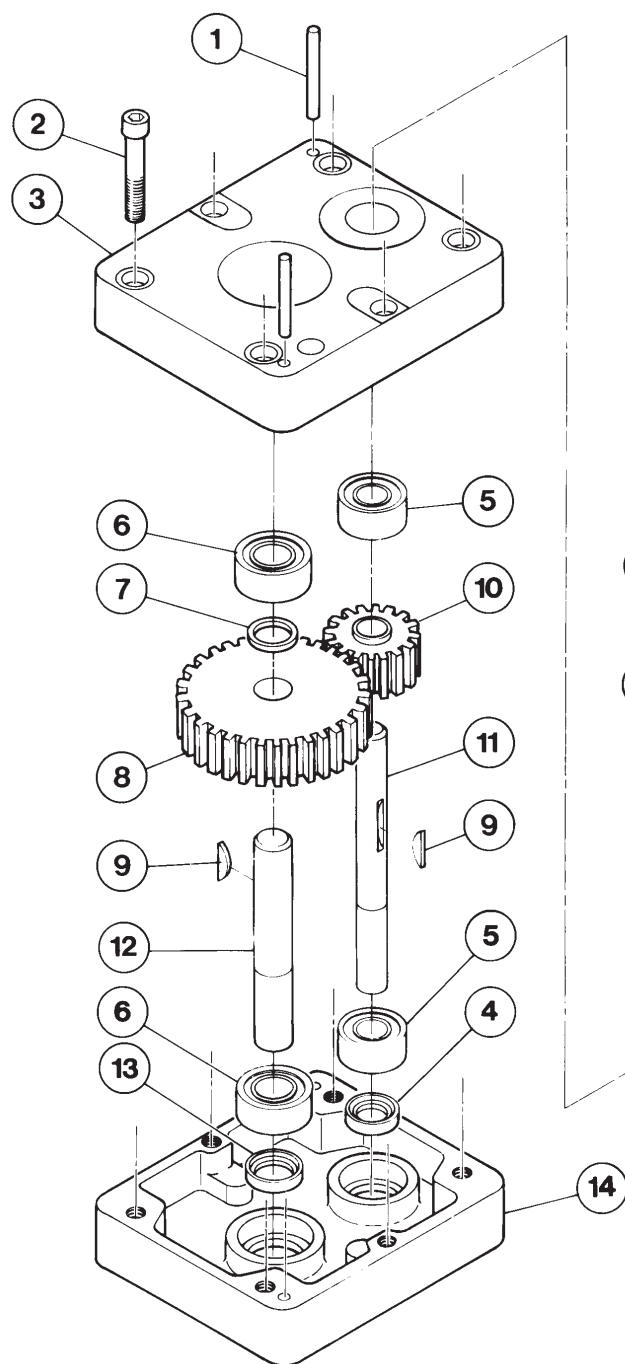
# BRIDGE ASSEMBLY



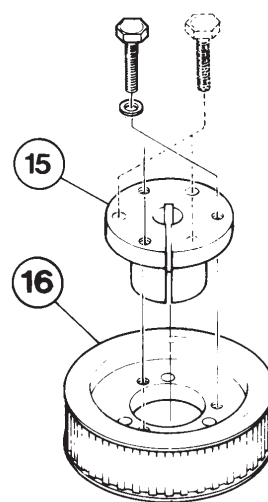
## **BRIDGE ASSEMBLY**

<b>ITEM NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>	<b>QTY.</b>
1	KE50342	Bushing, Taper Lock . . . . .	.2
2	KE50284	Pulley, Large . . . . .	.2
3	KE51763	Belt (MKDT-12-T) . . . . .	.1
	KE51808	Belt (MKDT-20-T) . . . . .	.1
4	KE50285	Pulley, Small . . . . .	.1
5	FA19094	Set Screw, 12 - 24 x 3/8" . . . . .	.2
6	KE51763	Belt (MKDT-12-T) . . . . .	.1
	KE51807	Belt (MKDT-20-T) . . . . .	.1
7	KE51764	Pulley, Small . . . . .	.1
8		See Gear Box Detail . . . . .	.1
9	KE00773	Speed Reducer . . . . .	.1
10	FA95037	Key, 3/16' x 3/16' x 3/4' . . . . .	.1
11	KE50294	Switch, Mercury . . . . .	.1
12	KE50295	Bracket, Mercury Switch . . . . .	.1
13	KE51962	Motor, D.C. 3/4 H.P., 120 V . . . . .	.1
	KE51963	Motor, D.C., 3/4 H.P., 240 V . . . . .	.1
14	FA95014	Key, 3/16' x 3/16" x 1 . . . . .	.1
15	KE51900	Connector, Conduit . . . . .	.1
16	KE51916	Conduit (MKDT-12-T) . . . . .	.1
	KE51917	Conduit (MKDT-20-T) . . . . .	.1
17	KE50151	Knob, Handle . . . . .	.1
18	KE51801	Pin, Bridge Support (MKDT-12-T) . . . . .	.1
	KE51802	Pin, Bridge Support (MKDT-20-T) . . . . .	.1
19	KE00847	Bridge Support Post (MKDT-12-T) . . . . .	.1
	KE00848	Bridge Support Post (MKDT-20-T) . . . . .	.1
20	KE51809	Coupling, Primary Shaft . . . . .	.1
21	KE00831	Agitator, Primary (MKDT-12-T) . . . . .	.1
	KE00832	Agitator, Primary (MKDT-20-T) . . . . .	.1
22	KE51810	Coupling, Secondary Shaft . . . . .	.1
23	FA95038	Pin, Agitator Coupling Taper . . . . .	.2
24	KE00829	Agitator, Secondary (MKDT-12-T) . . . . .	.1
	KE00830	Agitator, Secondary (MKDT-20-T) . . . . .	.1
25	KE51833	Scraper Blade . . . . .	.24,34
26	KE51965	Bushing, Bridge Pivot . . . . .	.2
27	KE52025	Pin, Bridge Pivot . . . . .	.2

# GEAR BOX



**NOTE:** Insert bolts in opposite holes for taper lock bushing removal.





## **GEAR BOX**

<b>ITEM NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>	<b>QTY.</b>
1	FA95039	Dowel Pin, 1/4" x 28 (MKDT-12-T) . . . . .	2
	FA95004	Dowel Pin, 3/8" x 3" (MKDT-20-T) . . . . .	2
2	FA11510	Screw, Socket Head Cap, 5/16-18 UNC x 1-3/4" . . . . .	4
	FA10776	Screw, Socket Head Cap, 3/8 - 16 UNC x 2-1/2" . . . . .	4
3	KE51966	Upper Body Casing (MKDT-12-T) . . . . .	1
	KE50265	Upper Body Casing (MKDT-20-T) . . . . .	1
4	KE50268	Bushing, Small Gear . . . . .	1
5	KE50266	Bearing, Small Gear . . . . .	2
6	KE50259	Bearing, Large Gear . . . . .	2
7	KE51245	Spacer (MKDT-12-T) . . . . .	1
8	KE50299	Gear, Large Spur (MKDT-12-T) . . . . .	1
	KE00105	Gear, Large Spur (MKDT-20-T) . . . . .	1
9	FA95003	Key, Woodruff . . . . .	2
10	KE00106	Gear, Small Spur . . . . .	1
11	KE50264	Shaft, Driving . . . . .	1
12	KE50261	Shaft, Driven (MKDT-12-T) . . . . .	1
	KE50260	Shaft, Driven (MKDT-20-T) . . . . .	1
13	KE50269	Bushing, Large Gear . . . . .	1
14	KE51967	Lower Body Casing (MKDT-12-T) . . . . .	1
	KE50267	Lower Body Casing (MKDT-20-T) . . . . .	1
15	KE50342	Bushing, Taper Lock . . . . .	1
16	KE50284	Pulley, Large . . . . .	1

# **MAINTENANCE**

## ***ALL SERVICE MUST BE PERFORMED BY A QUALIFIED SERVICE TECHNICIAN.***

This kettle requires very little preventative maintenance other than daily cleaning.  
The pressure relief valve must be tested twice a year.

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### **PRESSURE RELIEF VALVE TESTING PROCEDURE**

#### **WARNING**

Kettle will be hot. Use gloves for protection.

The pressure relief valve (optional on kettles) must be checked at least twice a year as part of the normal maintenance performed.

1. Open steam valve and preheat kettle.
2. Stand to the side of the pressure relief valve discharge tube and pull ring three or four times to insure free movement. Hold valve open for two seconds each time, insuring there is rapid steam escape each time.
3. If valve appears to be sticking replace pressure relief valve. If foreign material is discharged, replace pressure relief valve and eliminate the source of contamination.

### **STEAM TRAP**

To remove line condensate that forms inside the steam jacket, each kettle should be equipped with a steam trap in the line of the kettle outlet to the drain. A good steam trap at startup releases air and wet steam into the drain line for a few minutes, then holds the steam jacket. During cooking, the trap periodically releases accumulated condensate. If the kettle's cooking performance becomes inadequate after long use, replacement of the steam trap with a new one may restore kettle operation to peak efficiency.

### **MARINE LOCK**

Inspect lock at least twice yearly.

1. Check for excessive play or wear on pivot. Adjust or replace as required.
2. Insure lock is catching over the centre of the stop pin and not bent to one side or the other. Adjust or replace as required.

### **WARRANTY**

Our Company supports a worldwide network of Maintenance and Repair Centers. Contact your nearest Maintenance and Repair Centre for replacement parts, service, or information regarding the proper maintenance and repair of your cooking equipment

In order to preserve the various agency safety certification (UL, NSF, ASME/Ntl. Bd., etc.), only factory-supplied replacement parts should be used. The use of other than factory supplied replacement parts will void warranty.

# TROUBLESHOOTING GUIDE

This section contains information intended for use by Authorized Service Personnel only.

## **PROBLEM**

**A/** Kettle heats too slowly or does not come to a boil.

### **Probable Cause**

1. Inadequate steam flow.
2. Steam trap not operating properly.
3. Food batches are not always the same.

### **Remedy**

Check for correct steam using chart below.

If kettle is connected to a steamer and powered by a generator the units should be operated sequentially (kettle boiling first, then start steamer).

The trap should open periodically to dump condensate, then close.

If it does not open or close it should be cleaned or replaced.

When checking make certain that the original state (ie. fresh or frozen) and quantity of food product is the same.

## **PROBLEM**

**B/** The trunnion housing leaks steam.

### **Probable Cause**

1. Trunnion "O" rings are worn.

### **Remedy**

Replace "O" rings (see Steam Control Assembly drawing).

## **STEAM FLOW RATING OF STEAM GENERATORS**

<b>Gas Input BTU/Hour</b>	<b>Steam Output Lbs./Hour</b>	<b>Boiler H.P.</b>
100,000	60	1.7
160,000	95	2.8
200,000	125	3.6
250,000	150	4.4
300,000	180	5.2
<b>Electric KW Input</b>		
18	60	1.7
24	70	2.0
27	90	2.6
36	120	3.5
48	150	4.4

## **STEAM FLOW RATING REQUIREMENTS FOR KETTLES**

<b>Capacity Gal./Lit.</b>	<b>Fast Cooking</b>	<b>Medium Cooking</b>	<b>Stock Kettle</b>
6/17	11	9	6
12/42	22	18	11
Above shows lbs. per hour with 10-15 psig steam at the kettle. The use of higher steam pressures (20-25 psig) will reduce heat-up time 5-20%.			

# WIRING DIAGRAM

